

Chapter 5: Future NO_x Reductions and Ozone Improvements

Despite improvements in ozone air quality in many areas of the country, ozone continues to be a pervasive air pollution problem. More than 100 million people in the eastern United States are still living in nonattainment areas that do not meet the 8-hour ozone standard. Continued reductions anticipated under the NO_x SIP Call will help reduce emissions of NO_x and improve air quality. Recent national mobile source regulations will help reduce ozone by reducing NO_x and VOCs from new passenger vehicles, heavy-duty diesel engines, and other mobile sources.

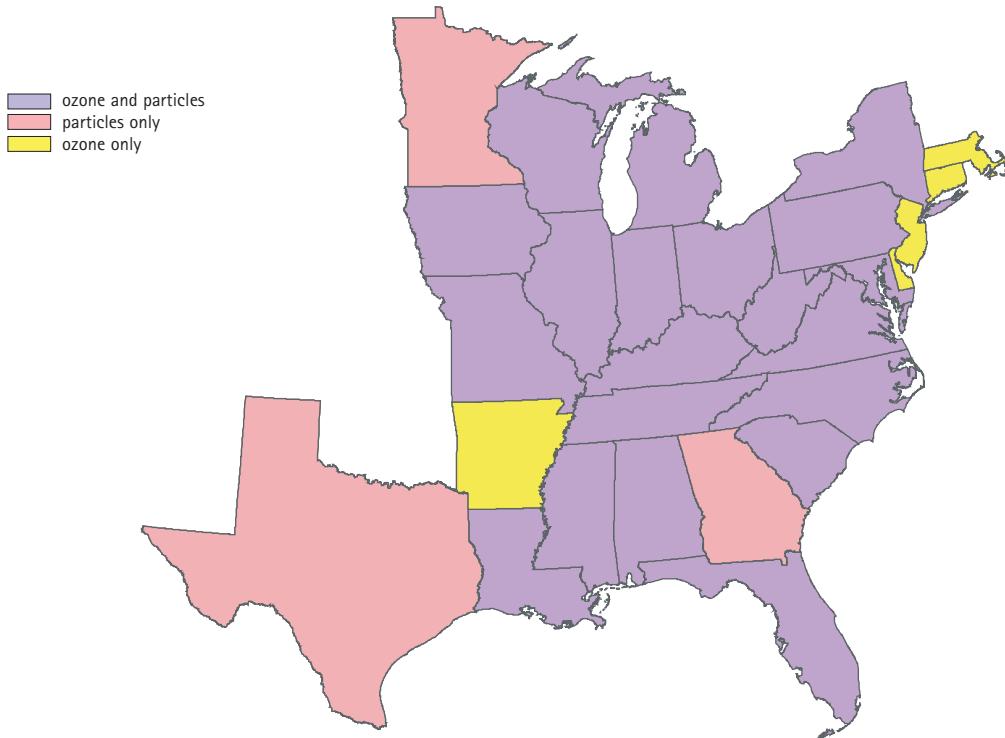
In addition, EPA's Clean Air Interstate Rule (CAIR) will help further reduce ozone in the East. This landmark rule, issued March 10, 2005, will permanently cap power industry emissions of sulfur dioxide (SO₂) and NO_x in the eastern United States, achieving large reductions of these pollutants. CAIR will build on the ozone season emission reductions from the NO_x SIP Call. In 2015, CAIR, the NO_x SIP Call, and other programs in the CAIR region will reduce power industry ozone season NO_x emissions by about 50 percent and



How Does the Clean Air Interstate Rule (CAIR) Affect NO_x Budget Trading Program States?

The NO_x SIP Call requirements will remain in place, but in 2009, EPA will stop administering the existing regional ozone season NO_x trading programs. States can meet their NO_x SIP Call obligations using the CAIR's ozone season NO_x trading program. CAIR allows states to include all of their NO_x SIP Call trading sources in the CAIR ozone season trading program. If a state includes industrial units, the trading budget for those units remains the same as the NO_x SIP Call. The 2009 CAIR ozone season NO_x electric generating unit budgets are at least as stringent as the NO_x SIP Call budgets, and in some states are tighter. In 2015, the ozone season emission cap will be further reduced. In addition, because CAIR allows sources to use pre-2009 NO_x SIP Call allowances for compliance on a 1:1 basis with the CAIR ozone season NO_x program (i.e., the allowances can be banked and carried into the CAIR), NO_x Budget Trading Program (NBP) sources have an incentive to begin reducing their emissions now. Also, as with the NO_x SIP Call, the CAIR annual NO_x program includes a compliance supplement pool to provide incentives for sources to reduce non-ozone season NO_x emissions prior to CAIR. For more information, visit <www.epa.gov/cair>.

Figure 29: States Covered by the Clean Air Interstate Rule (CAIR)



Source: EPA

Note: EPA proposed in March 2005 to add Delaware and New Jersey to the states in CAIR covered for fine particles.

annual NO_x emissions by about 60 percent from 2003 levels. In addition by 2015, CAIR and other existing air programs will reduce the number of 8-hour ozone nonattainment areas, and will bring remaining areas closer to attainment.

In 2015, EPA predicts that with CAIR and existing federal and state programs, only six ozone nonattainment areas will remain in the East: Chicago; Houston; Philadelphia, New York City; Baltimore and Washington, D.C. States are working to identify and implement local controls to move these remaining six areas toward attainment.

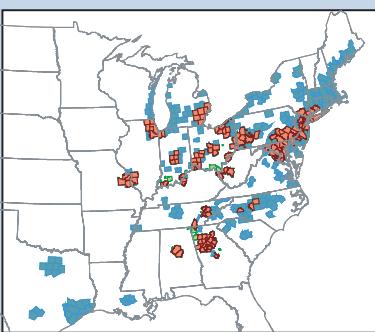
CAIR is similar to the NO_x SIP Call in that it requires states to submit SIPs and meet a budget to reduce emissions. CAIR reduces NO_x through two budgets: ozone season NO_x budgets in 25 states and Washington, D.C., and annual budgets to reduce fine particle pollution (PM 2.5) in 23 states and Washington, D.C. In March 2005, EPA proposed to add Delaware and New Jersey to the states in CAIR covered for fine particles. Many states are affected by CAIR for both ozone season NO_x and annual NO_x and SO₂ (see Figure 29). Like the NO_x SIP Call, CAIR establishes EPA-administered, interstate cap and trade programs that states can choose to use to obtain the required emission reductions. EPA anticipates that most, if not all, affected states will join these trading programs.

Ozone and Particle Pollution in the Future

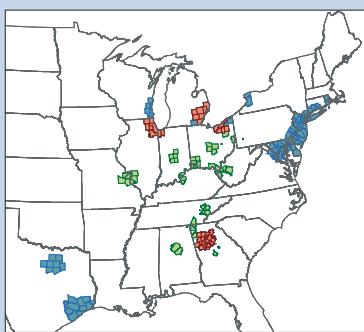
The Clean Air Interstate Rule (CAIR), Together With Other Clean Air Programs, Will Bring Cleaner Air to Areas in the East.

On March 10, 2005, EPA issued CAIR. This rule will achieve the greatest air quality improvement, and the deepest cut in emissions of SO₂ and NO_x in more than a decade. Key compliance dates are 2009 (Phase I cap on NO_x), 2010 (Phase I cap on SO₂) and 2015 (Phase II cap on NO_x and SO₂).

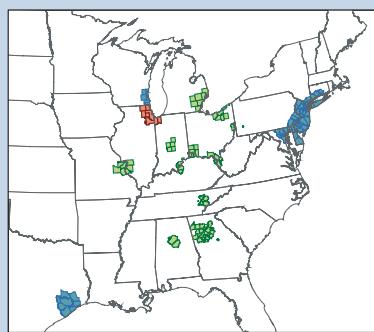
Ozone and Fine Particle Nonattainment Areas (April 2005)



Projected Nonattainment Areas in 2010 after Reductions from CAIR and Existing Clean Air Act Programs



Projected Nonattainment Areas in 2015 after Reductions from CAIR and Existing Clean Air Act Programs



- Nonattainment areas for both 8-hour ozone and fine particle pollution
- Nonattainment areas for fine particle pollution only
- Nonattainment areas for 8-hour ozone only

Source: EPA

Note: Projections concerning future levels of air pollution in specific geographic locations were estimated using the best scientific models available. They are estimations, however. Actual results may vary significantly if any of the factors that influence air quality differ from the assumed values used in the projections shown here.



Online Resources

General Information:

- Office of Air and Radiation: www.epa.gov/oar
 - Office of Air Quality Planning and Standards: www.epa.gov/oar/oaqps
 - Office of Atmospheric Programs: www.epa.gov/air/oap.html
- National Academies: www4.nationalacademies.org/nas/nashome.nsf
- Mobile Sources: www.epa.gov/otaq
- Cap and Trade and Related Programs: www.epa.gov/airmarkt/index.html

NOx Control Programs:

- Acid Rain Program: www.epa.gov/airmarkets/arp/index.html
- Ozone Transport Commission (OTC) NOx Budget Program: www.epa.gov/airmarkets/otc/index.html
- NO_x Budget Trading Program: www.epa.gov/airmarkets/fednox/index.html
- Clean Air Interstate Rule (CAIR): www.epa.gov/cair/index.html

Ozone Information:

- Formation of Ozone: www.epa.gov/air/urbanair/ozone/what.html
- Health and Ecological Effects: www.epa.gov/air/urbanair/ozone/hlth.html
- Ozone Depletion: www.epa.gov/ozone
- 8-hour and 1-hour Ozone Trends and Factbook: www.epa.gov/airtrends

Emissions Data and Monitoring Information:

- National Emissions Inventory (NEI): www.epa.gov/ttn/chief/net/
- Emissions Data for the Power Industry: <http://cfpub.epa.gov/gdm>
- Emissions Development: www.epa.gov/ttn/chief/trends/procedures/neiproc_99.pdf
- NO_x and VOC Limitation: <http://www.cgenv.com/Narsto/american.chem.council.html>

Ozone Monitoring Networks and Data:

- Clean Air Status and Trends Network (CASTNET): www.epa.gov/castnet.
- Air Quality System (AQS): www.epa.gov/ttn/airs/airsaqs

Other Emissions and Air Quality Resources:

- General Information on EPA Air Quality Monitoring Networks: www.epa.gov/ttn/amtic
- Clean Air Mapping and Analysis Program (C-MAP): www.epa.gov/airmarkets/cmap/index.html.
- The Emissions and Generation Resource Integrated Database (eGRID): www.epa.gov/cleanenergy/egrid/index.html
- AIRNow: www.epa.gov/airnow